

Appln. No. 09/869,006  
Paper dated 7/21/03  
Reply to Office Action of January 22, 2003

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1 (Currently amended): Instrument for non invasive measurement of the a three-dimensional distribution of the temperatures of dielectric objects, with the inclusion of human organs or other biological tissues, characterised by the fact that it uses the instrument comprising sensors to determine the electromagnetic heat emission power data in a frequency range between the radio wave frequency radiation and the one of infrared radiation, said sensors being mounted on supports, that are said supports being adjustable and movable in space, so as that, remaining fixed the object of which one wants to determine the three-dimensional distribution of the temperature, the various sensors can be positioned in such a way as to measure the emission along directions that have been pre-established by the observer. The movement of the sensors may occur both automatically and manually. The said sensors being positionable along pre-established directions to determine said three dimensional distribution of temperature, said instrument including a data storage and calculation system having an interface with said sensors, said electromagnetic heat emission power data measured by the said sensors are being sent through opportune said interfaces to the said data memorisation storage and calculation system, that are able to re-elaborate the experimental information (total emission of electromagnetic waves of the object at various wave lengths and through various directions and/or distances, resolving integral equations with Fridgolm type methods, setting said data storage and calculation system producing as output the a three-dimensional map of the said temperatures distribution.

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2 (Currently amended): Instruments for non invasive measurement of the three-dimensional distribution of the temperatures of the dielectric objects according to claim 1 characterised by the fact that wherein the maps are supplied as is in the form of a table.

3 (Currently amended): Instruments for non invasive measurement of the three-dimensional distribution of the dielectric objects according to claim 2 characterised by the fact that 1 wherein the maps are supplied is displayed on a screen.

*B' ON*  
4 (Currently Amended): Instruments for non invasive measurement of the three-dimensional distribution of the temperatures of the dielectric objects according to claim 2 characterised by the fact that 1 wherein the maps are supplied as is in the form of a thermal maps.

5 (Currently Amended): A Non invasive measurement methods of measuring the three-dimensional distribution of the temperatures of the dielectric objects using an instrument of the type according to claim 1 characterised by the fact that it uses a reconstructive approach of the comprising the steps of reconstructing point like temperatures based on the use of the Raley-Jeans or similar using Rayleigh-Jeans equations, that uses calculus algorithms of the three-dimensional thermal distribution may be based on models in which the link between the emission intensities and the and expressing said temperature profiles are expressed distribution through Fridgolm integrals equations or by other similar equations , said three dimensional temperature distribution being based upon models linking emission intensities and said temperature distribution through said Fridgolm integrals.

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6 (Currently amended): A non invasive measurement methods of the three-dimensional distribution of the temperatures of the dielectric objects according to claim n° 5 characterised by the fact that the registration of the further comprising the step of recording thermometric data, the data registration and its handling, both automatically through opportune algorithms, apart from their specific nature.

*B'part*

7 (Currently amended): A non invasive measurement methods of the three-dimensional distribution of the dielectric objects according to claim n° 5 characterized by the fact that it is used for further comprising the step of using said three dimensional temperature distribution for medical-diagnostic purposes, on human internal organs.

8 (Currently amended): A non invasive measurement methods of the three-dimensional distribution of the temperatures of the dielectric objects according to claim n° 5 characterised by the fact that the operator further comprising the step of manually determines determining topological parameters for sensor handling working on gradually increasing or decreasing wave lengths.

9 (Currently amended): A non invasive measurement methods of the three-dimensional distribution of the temperatures of the dielectric objects according to claim n° 5 characterised by the fact that the sensor further comprising the step of handling is automatic the sensors automatically and occurs according to the pre-established programs, that can be chosen by the operator.

10 (Currently amended). A non invasive measurement methods of measuring the three-dimensional distribution of the temperatures of the dielectric objects using an instrument of the type according to claim 2 characterised by the fact that it uses a reconstructive approach of the comprising the steps of reconstructing point like

temperatures based on the use of the Raley-Jeans or similar using Rayleigh-Jeans equations, that uses calculus algorithms of the three-dimensional thermal distribution may be based on models in which the link between the emission intensities and the and expressing said temperature profiles are expressed distribution through Fridgolm integrals equations or by other similar equations, said three dimensional temperature distribution being based upon models linking emission intensities and said temperature distribution through said Fridgolm integrals.

*B'x*

11 (Currently amended): A non invasive measurement methods of measuring the three-dimensional distribution of the temperatures of the dielectric objects using an instrument of the type according to claim 3 characterised by the fact that it uses a reconstructive approach of the comprising the steps of reconstructing point like temperatures based on the use of the Raley-Jeans or similar using Rayleigh-Jeans equations, that uses calculus algorithms of the three-dimensional thermal distribution may be based on models in which the link between the emission intensities and the and expressing said temperature profiles are expressed distribution through Fridgolm integrals equations or by other similar equations, said three dimensional temperature distribution being based upon models linking emission intensities and said temperature distribution through said Fridgolm integrals.

12 (Currently amended): A non invasive measurement methods of measuring the three-dimensional distribution of the temperatures of the dielectric objects using an instrument of the type according to claim 4 characterised by the fact that it uses a reconstructive approach of the comprising the steps of reconstructing point like temperatures based on the use of the Raley-Jeans or similar using Rayleigh-Jeans equations, that uses calculus algorithms of the three-dimensional thermal distribution may be based on models in which the link between the emission intensities and the and

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expressing said temperature profiles are expressed distribution through Fridgolm integrals equations or by other similar equations, said three dimensional temperature distribution being based upon models linking emission intensities and said temperature distribution through said Fridgolm integrals.

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